

CLAIMS:

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent is:

- 1 1. An automatic flowcharting method for diagrammatically representing a
- 2 multi-nodal process comprising processing operations and decision operations, said
- 3 method comprising:
- 4 (a) converting processing operations and decision operations of said multi-
- 5 nodal process into a data structure;
- 6 (b) analyzing said data structure for identifying a first group of processing
- 7 operations that appear once in said data structure, and for identifying a second group of
- 8 processing operations that are associated with two or more decision operations in said
- 9 data structure;
- 10 (c) traversing said data structure to generate an ordered sequence of
- 11 processing operations for visual representation; and
- 12 (d) generating a diagrammatic representation of said ordered sequence
- 13 including orienting successive processing operations in a vertical dimension and
- 14 associating attributes to each processing operation of said processing operations
- 15 according to their identified group while offsetting each successive processing operation
- 16 in a horizontal dimension, and linking each processing operation of said second group to
- 17 a further processing step of said processing steps according to a decision operation of
- 18 said two or more decision operations.

1 2. The automatic flowcharting method according to Claim 1, said method
2 further comprising the step of:
3 associating a first visual attribute to said processing operations in said first
4 selected group and a second visual attribute to said processing operations in said second
5 selected group.

1 3. The automatic flowcharting method according to Claim 2, wherein said
2 first visual attribute is a first color.

1 4. The automatic flowcharting method according to Claim 2, wherein said
2 second visual attribute s a second color.

1 5. The automatic flowcharting method according to Claim 1, said
2 analyzing step further comprising:
3 identifying a third group of processing operations that repeatedly appear in
4 said data structure.

1 6. The automatic flowcharting method according to Claim 5, said
2 analyzing step further comprising:
3 associating a third visual attribute to said processing operations in said
4 third group.

1 7. The automatic flowcharting method according to Claim 6, wherein said
2 third visual attribute is a third color.

1 12. The automatic flowcharting method according to Claim 1, wherein
2 said each successive processing operation is offset in said horizontal dimension relative
3 to an immediate prior processing operation.

1 13. The automatic flowcharting method according to Claim 1, said method
2 further comprising a step of:
3 writing an output file for said generated diagrammatic representation of
4 said multi-nodal process.

1 14. The automatic flowcharting method according to Claim 13, wherein
2 said output file is written in a markup language for presentation in a web-enabled
3 browser.

1 15. The automatic flowcharting method according to Claim 14 wherein
2 said output file is transmitted over a communications network.

1 16. The automatic flowcharting method according to Claim 15 wherein
2 said communications network is one selected from the group comprising:
3 an Intranet, and
4 the Internet.

1 17. An automatic flowcharting system for diagrammatically representing a
2 multi-nodal process comprising processing operations and decision operations in a client-
3 server environment, said system comprising:

4 (a) a server interconnected via a communications network to a client, said
5 server including:

6 (i) a mechanism for converting processing operations and decision
7 operations of said multi-nodal process into a data structure;

8 (ii) a mechanism for analyzing said data structure for identifying a
9 first group of processing operations that appear once in said data structure, and for
10 identifying a second group of processing operations that are associated with two or more
11 decision operations in said data structure; and
12 (iii) a mechanism for traversing said data structure to generate and
13 ordered sequence of processing operations for visual representation;
14 (iv) a mechanism for generating a diagrammatic representation of
15 said ordered sequence including orienting said processing operations in a vertical
16 dimension and associating attributes to each processing operation of said processing
17 operations according to their identified group while offsetting each successive processing
18 operation in a horizontal dimension, and linking each processing operation of said second
19 group to a further processing step of said processing steps according to a decision
20 operation of said two or more decision operations;
21 (b) said client for receiving said generated diagrammatic representation of
22 said multi-nodal process via said communications network in a form for presentation by
23 said client.

1 18. The automatic flowcharting system according to Claim 17, said server
2 further including:
3 a mechanism for associating a first visual attribute of said processing
4 operations in said first group and a second visual attribute to said processing operations
5 in said second group.

1 said plurality of records containing a first processing operation, a second processing
2 operation and a decision operation.

1 25. The automatic flowcharting system according to Claim 24, said server
2 further including:

3 a mechanism for automatically exporting said processing operations and
4 said decision operations for said multi-nodal process from a database into said input file.

1 26. The automatic flowcharting system according to Claim 17, said
2 mechanism for analyzing further comprising:

3 a mechanism for detecting deadlock conditions in said sequence.

1 27. The automatic flowcharting system according to Claim 17, wherein in
2 the mechanism for generating, each processing operation of said second selected group is
3 vertically linked to said further processing step of said processing steps.

1 28. The automatic flowcharting system according to Claim 17, said
2 mechanism for generating further comprising:

3 a mechanism for determining a horizontal indentation for each successive
4 processing operation of said processing operations.

1 29. The automatic flowcharting system according to Claim 17, said server
2 further including:

1 a mechanism for writing an output file of said generated diagrammatic
2 representation of said multi-nodal process.

1 30. The automatic flowcharting system according to Claim 28, wherein
2 said output file is written in a markup language for presentation in a web-enabled
3 browser by said client.

1 31. The automatic flowcharting system according to Claim 30, wherein
2 said output file is transmitted over said communications network.

1 32. The automatic flowcharting method according to Claim 31, wherein
2 said communications network is one selected from the group comprising:

3 an Intranet, and
4 the Internet.

1 33. A program storage device readable by a machine, tangibly embodying
2 a program of instructions executable by the machine to perform an automatic
3 flowcharting method for diagrammatically representing a multi-nodal process comprising
4 processing operations and decision operations, said method comprising:

5 (a) converting processing operations and decision operations of said multi-
6 modal process into a data structure;

7 (b) analyzing said data structure for identifying a first group of processing
8 operations that appear once in said data structure, and for identifying a second group of

9 processing operations that are associated with two or more decision operations in said
10 data structure; and

11 (c) traversing said data structure to generate an ordered sequence of
12 processing operations for visual representation;

13 (d) generating a diagrammatic representation of said ordered sequence
14 including orienting said processing operations of in a vertical dimension and associating
15 attributes to each processing operation of said processing operations according to their
16 identified group while offsetting each successive processing operation of said in a
17 horizontal dimension, and linking each processing operation of said second group to a
18 further processing operation of said processing operations according to a decision
19 operation of said two or more decision operations.

1 34. The program storage device according to Claim 33, said method
2 further comprising the step of:

3 associating a first visual attribute to said processing operations in said first
4 group and a second visual attribute to said processing operations in said second group.

1 35. The program storage device according to Claim 34, wherein said first
2 visual attribute is a first color.

1 36. The program storage device according to Claim 34, wherein said
2 second visual attribute is a second color.

1 37. The program storage device according to Claim 33, said analyzing step
2 further comprising:
3 identifying a third group of processing operations that repeatedly appear in
4 said data structure.

1 38. The program storage device according to Claim 37, said analyzing
2 step further comprising:
3 associating a third visual attribute to said third group of processing
4 operations

1 39. The program storage device according to Claim 38, wherein said third
2 visual attribute is a third color

1 40. The program storage device according to Claim 33, said method
2 further comprising a step of:
3 reading an input file containing said processing operations and said
4 decision operations for said multi-nodal process, said processing operations and said
5 decision operations being arranged into a plurality of records each of said plurality of
6 records containing a first processing operation, a second processing operation and a
7 decision operation.

1 41. The program storage device according to Claim 40, said method
2 further comprising a step of:

1 automatically exporting said processing operations and said decision
2 operations for said multi-nodal process from a database into said input file.

1 42. The program storage device according to Claim 33, said analyzing
2 step for determining a sequence further comprising a step of:
3 detecting deadlock conditions in said sequence.

43. The program storage device according to Claim 33, wherein the
linking of each processing operation of said second group includes visually aligning said
processing operation in said vertical dimension to said further processing step.

1 44. The program storage device according to Claim 33, wherein said each
2 successive processing operation is offset in said horizontal dimension relative to an
3 immediate prior processing operation.

1 45. The program storage device according to Claim 33, said method
2 further comprising a step of:
3 writing an output file of said generated diagrammatic representation of
4 said multi-nodal process.

1 46. The program storage device according to Claim 45, wherein said
2 output file is written in a markup language for presentation in a web-enabled browser.

1 47. The program storage device according to Claim 46, wherein said
2 output file is transmitted over a communications network.

1 48. The program storage device according to Claim 47, wherein said
2 communications network is one selected from the group comprising:
3 an Intranet, and
4 the Internet.

48. The program storage device according to Claim 47, wherein said
communications network is one selected from the group comprising:
an Intranet, and
the Internet.